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Basic health care provision fund (BHCPF): Accountability, fund utilization and primary healthcare service outcomes in Nigeria

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Abstract
This study examined accountability, fund utilization and primary healthcare service outcomes under Nigeria's Basic Health Care Provision Fund (BHCPF) using a health facility-based cross-sectional design involving 276 primary healthcare facilities across the six geopolitical zones. The analysis focused on BHCPF funding received, duration of participation, annual account auditing, functional Ward Development Committee/Health Facility Committee, monthly financial reporting, procurement arrangements, drug stock-outs, infrastructure upgrading, staff incentives, reported leakage, service utilization and a composite accountability score. The facilities were equally distributed across the six geopolitical zones, with 46 facilities (16.7%) per zone. BHCPF funding received during the preceding 12 months ranged from approximately ₦1.6 million to ₦15.3 million. Annual account auditing was documented in 161 facilities (58.3%), while 115 (41.7%) had no documented annual audit. Accountability scores ranged from 1 to 10, demonstrating substantial heterogeneity in facility-level financial governance. Service utilization, measured as the percentage increase in antenatal-care attendance and deliveries compared with the preceding year, ranged from 0% to 84%. Descriptively, facilities with stronger combinations of annual auditing, functional community oversight and regular financial reporting were concentrated at the upper end of the accountability scale and generally recorded more favourable patterns of infrastructure upgrading, essential-drug availability, reported financial integrity and service utilization. Suspected fund diversion was concentrated among facilities with weaker accountability arrangements. Because the study was cross-sectional, the observed relationships are interpreted as associations rather than causal effects. The findings indicate that BHCPF financing is most likely to produce meaningful primary healthcare benefits when accompanied by effective auditing, transparent financial reporting, community oversight and procurement controls. Strengthening these accountability mechanisms is therefore essential for improving the value of BHCPF investments and advancing universal health coverage in Nigeria.

Keywords: Basic health care provision fund, accountability, fund utilization, primary healthcare, financial governance, service utilization, Nigeria

Introduction

Universal health coverage (UHC) remains a central objective of contemporary health-system reform and a major component of Sustainable Development Goal 3, particularly Target 3.8, which calls for universal access to essential health services, financial risk protection, quality medicines and vaccines. Health financing is fundamental to achieving this objective because the manner in which resources are mobilized, pooled, allocated, transferred and used determines whether populations can obtain needed healthcare without suffering financial hardship. The World Health Organization (WHO) identifies health financing as a core health-system function through which countries can simultaneously improve effective service coverage and financial protection (World Health Organization [WHO], 2026) [7]. Adequate financing alone, however, does not guarantee better health outcomes. The effectiveness of health expenditure depends on whether resources reach frontline facilities, are released predictably, are utilized for approved purposes, and are subjected to appropriate financial reporting, community oversight, auditing and performance monitoring. Thus, accountability and efficient resource utilization have become essential dimensions of health-financing reform, particularly in low- and middle-income countries where fiscal constraints and institutional weaknesses may limit the translation of public expenditure into improved health services.

The international importance of effective public health financing is underscored by the continuing burden of direct household expenditure. Despite global progress towards financial protection, large numbers of people continue to experience financial hardship arising from out-of-pocket healthcare expenditure (WHO, 2026). High reliance on out-of-pocket payments can discourage timely care seeking, exacerbate socioeconomic inequalities and expose households to catastrophic expenditure. Consequently, contemporary UHC strategies increasingly emphasize prepayment, risk pooling, strategic purchasing and effective public financing rather than dependence on payment at the point of service. Sufficient and timely transfers to healthcare providers can support adequate staffing, medicines and service delivery, demonstrating that both the quantity and operational management of financing are important determinants of health-system performance.

These financing challenges are particularly relevant to Nigeria, Africa's most populous country and a federation in which responsibilities for healthcare governance and service delivery are distributed across federal, state and local government structures. Primary healthcare (PHC) constitutes the foundation of the Nigerian health system and represents the level at which most preventive, promotive and basic curative services should be delivered. PHC facilities are expected to provide essential services such as maternal and newborn healthcare, antenatal care, routine

immunization, family planning, treatment of common illnesses, health education, disease prevention and referral. Nevertheless, longstanding challenges—including inadequate infrastructure, shortages of essential medicines and health personnel, fragmented governance, weak referral arrangements, inconsistent financing and geographical inequalities—have constrained the ability of PHC facilities to fulfil these responsibilities (WHO, 2024).

Health financing is particularly problematic in Nigeria because households continue to bear a substantial proportion of healthcare expenditure directly. High out-of-pocket expenditure creates substantial barriers for poor and vulnerable populations, particularly those living in rural communities and working within the informal economy. This financing structure has implications for whether pregnant women attend antenatal clinics, whether children receive timely treatment, whether patients adhere to medication and whether households postpone care because they cannot afford it.

The Basic Health Care Provision Fund (BHCPF) represents one of Nigeria's most important policy responses to these persistent financing and PHC challenges. The Fund was established under Section 11 of the National Health Act 2014 [5] as a dedicated mechanism for expanding access to basic healthcare and strengthening PHC. The National Primary Health Care Development Agency (NPHCDA) describes the BHCPF as catalytic financing intended to fund a Basic Minimum Package of Health Services, expand fiscal space for health, strengthen routine PHC operations and improve access for poor and vulnerable populations (NPHCDA, 2025). The statutory funding architecture provides for an annual Federal Government contribution of not less than 1% of the Consolidated Revenue Fund, supplemented by grants from international development partners and other sources. This arrangement represents an important attempt to establish a more predictable flow of resources for frontline healthcare services.

The BHCPF is therefore both a health-financing intervention and a governance reform. Its objectives extend beyond increasing the amount of money available to the health sector. The Fund is expected to finance essential health services, strengthen PHC infrastructure and operations, support essential drugs, vaccines, consumables, equipment and transportation, improve human-resource capacity and facilitate access to essential services. The programme operates through multiple gateways, reflecting the multidimensional nature of health-system financing and service delivery.

Direct financing of PHC facilities is particularly significant because facility-level financial autonomy may enable managers and community governance structures to respond to immediate service-delivery needs. Funds received at facility level can potentially be used to procure essential medicines and consumables, undertake minor renovations, maintain equipment, improve sanitation and utilities, support outreach activities and address other operational bottlenecks. When such resources are predictable and appropriately managed, they can improve facility readiness and contribute to greater utilization of services. Conversely, delayed disbursement, inappropriate expenditure, inadequate procurement controls, poor record keeping or diversion of resources may substantially weaken the expected benefits. Fund utilization must therefore be evaluated alongside fund availability.

The concept of accountability is central to this relationship. In health financing, accountability encompasses the obligation of actors who receive and manage public resources to explain and justify how those resources are used, comply with applicable regulations, maintain reliable records and accept corrective action when standards are violated. It includes financial accountability through budgeting, bookkeeping, reporting and auditing; administrative accountability through supervision and compliance with operational guidelines; community or social accountability through citizen participation and facility committees; and performance accountability through assessment of whether expenditure produces intended service-delivery results. Accordingly, accountability is not synonymous merely with the absence of fraud. It concerns the broader relationship between resources, responsibilities, transparency, participation and measurable performance.

This distinction is particularly important in the BHCPF context. Uzochukwu *et al*. (2018) [9] identified a complex accountability architecture involving actors at federal, state, local government, health-facility and community levels. The multiplicity of actors creates opportunities for oversight, but it can also generate ambiguity concerning responsibilities and accountability relationships unless roles, reporting pathways and sanctions are clearly defined.

Community participation constitutes an especially important component of PHC accountability. Ward Development Committees (WDCs), Health Facility Committees and related community structures can provide a mechanism through which service users and community representatives participate in facility planning, expenditure oversight and monitoring of healthcare delivery. Their potential value extends beyond detecting financial irregularities. Functional community governance structures can improve local ownership, increase responsiveness to community needs and create feedback mechanisms through which service deficiencies can be identified.

Financial reporting and auditing constitute complementary dimensions of accountability. Regular reporting to State Primary Health Care Development Agencies can provide information on receipts, expenditure and balances, while annual auditing can independently assess whether financial transactions comply with established requirements. Procurement policies are equally important because a considerable proportion of PHC expenditure involves medicines, consumables, minor works and equipment. Weak procurement procedures can result in inflated prices, inappropriate purchases, conflicts of interest and reduced value for money even where outright diversion of funds does not occur.

Recent empirical evidence suggests that these governance concerns remain pertinent. Adeoye *et al*. (2024) [1] examined stakeholder perspectives on BHCPF governance and found that, although financial processes were perceived as relatively ring-fenced, important accountability weaknesses remained at subnational service-delivery levels. Respondents identified unclear accountability arrangements, low utilization, implicit priority setting and poor quality of care among relevant concerns. These findings shift the analytical focus from a narrow question of whether funds are stolen to the broader question of whether public

resources are translated efficiently and equitably into quality services.

The policy environment has continued to evolve. Revised BHCPF guidance emphasizes transparent disbursement and utilization, equity for vulnerable and underserved populations, stronger health systems, collaboration across levels of government and long-term sustainability. Current NPHCDA reforms also emphasize digital financial tracking, Ward Development Committees, business and quality-improvement plans and performance-linked facility financing (NPHCDA, 2025).

At facility level, several observable indicators can help establish whether the financing-to-performance pathway is functioning. Essential drug stock-outs indicate whether resources and procurement systems are maintaining availability of critical inputs. Infrastructure renovation and equipment acquisition demonstrate whether BHCPF resources are contributing to facility readiness. Staff incentives may reflect investment in motivation and operational performance, while suspected fund leakage provides a direct indicator of potential financial-governance failure. Changes in antenatal-care attendance and facility deliveries provide service-utilization measures that can indicate whether improved financing and facility readiness are translating into greater use of essential maternal healthcare.

There is therefore an important distinction between fund absorption and effective fund utilization. A PHC facility may spend its allocation completely without necessarily achieving improved performance. Effective utilization requires that expenditure be timely, compliant, transparent, aligned with priority needs and capable of producing measurable service improvements. From a public financial management perspective, value for money incorporates economy, efficiency and effectiveness.

Despite increasing research on BHCPF, an important empirical gap remains. Much of the earlier Nigerian literature examined implementation readiness, governance structures, stakeholder perceptions and institutional arrangements. Comparatively less facility-level evidence simultaneously links the amount of BHCPF resources received, duration of participation, auditing, financial reporting, community oversight and procurement arrangements with concrete indicators of fund utilization and service performance across Nigeria's geopolitical zones.

Against this background, the present study examines accountability and BHCPF fund utilization at the PHC level in Nigeria using a health facility-based cross-sectional survey of 276 PHC facilities across the six geopolitical zones. Guided by the BHCPF accountability framework and the statutory foundation established under Section 11 of the National Health Act, the study assesses facility-level funding, duration of BHCPF participation, annual auditing, functional ward/community committees, monthly financial reporting and procurement arrangements. It further evaluates drug stock-outs, infrastructure upgrades, staff incentives, reported leakage, changes in antenatal-care and delivery utilization and a composite accountability score. By empirically linking financial-governance mechanisms with fund-utilization and service-delivery indicators, the study seeks to provide evidence on whether stronger accountability is associated with improved frontline PHC performance.

Review of Related Literature

1. Conceptual Overview of Primary Healthcare Financing

Primary healthcare financing encompasses the mobilization, pooling, allocation, disbursement, management and utilization of financial resources required to provide accessible and effective first-contact healthcare services. Financing is not merely concerned with increasing expenditure; it determines whether healthcare facilities possess sufficient resources to maintain essential medicines, equipment, infrastructure, personnel and routine service delivery. Within the universal health coverage framework, an effective financing system should enable individuals to obtain needed services without experiencing financial hardship.

International experience demonstrates that expanding financial resources without strengthening governance may produce limited improvements in health-system performance. Financial resources can be lost through inefficient procurement, inappropriate expenditure, weak expenditure controls, delayed releases, poor record keeping and corruption. Effective public financial management therefore connects resource mobilization with service-delivery performance.

2. The Basic Health Care Provision Fund

The BHCPF derives its statutory foundation from Section 11 of Nigeria's National Health Act 2014 [5]. The legislation established a dedicated funding mechanism intended to strengthen the provision of a Basic Minimum Package of Health Services and improve the capacity of the PHC system. The Fund represented a major policy shift because it created a statutory financing commitment rather than relying exclusively on conventional annual health-sector allocations.

The BHCPF is important within Nigeria's UHC architecture because it links national resource mobilization with frontline service delivery. It is designed to improve access to essential healthcare, particularly for poor and vulnerable populations, while supporting PHC facilities with resources required for effective service provision. NPHCDA currently describes direct facility financing as supporting essential drugs and supplies, minor repairs, community outreach and supportive supervision, while requiring functional WDCs and facility planning mechanisms (NPHCDA, 2025).

3. Concept of Accountability in Healthcare Financing

Accountability refers broadly to an obligation by individuals or institutions entrusted with authority and resources to explain their decisions, disclose their activities, demonstrate compliance with established standards and accept consequences where performance or conduct is inadequate. Within health systems, accountability is multidimensional and operates vertically and horizontally across government agencies, providers, communities and service users.

Uzochukwu *et al.* (2018) [9] distinguished financial, performance and political or democratic accountability as important dimensions of health-system governance. Financial accountability concerns allocation, disbursement, expenditure, documentation and auditing of resources. Performance accountability concerns whether actors achieve agreed objectives and service outcomes, while political and

democratic accountability concerns responsiveness to citizens and stakeholders.

Financial accountability is particularly relevant to BHCPF because PHC facilities control public resources intended for specified health purposes. Appropriate accountability therefore requires accurate bookkeeping, financial reporting, expenditure documentation, bank reconciliation, procurement compliance and periodic auditing. Financial reporting complements auditing by creating routine rather than episodic accountability.

4. Community Participation and Social Accountability

Community participation is a fundamental principle of PHC and an important mechanism of social accountability. Within the BHCPF accountability architecture, Health Facility Committees, Ward Development Committees and related community structures are expected to connect healthcare facilities with their surrounding populations. These structures can contribute to needs assessment, facility planning, expenditure oversight, monitoring and community mobilization.

Uzochukwu *et al*. (2018) [9] emphasized that non-state actors, particularly communities, need to be empowered and actively engaged in external accountability at lower levels of BHCPF implementation. The effectiveness of community accountability nevertheless depends on functionality rather than nominal existence. A WDC that exists only administratively but does not meet regularly, examine facility activities or participate meaningfully in decisions may have little accountability value.

Adeoye *et al*. (2024) [1] similarly found that limited citizen and local-government participation weakened monitoring and accountability within BHCPF implementation, suggesting that inclusive decision-making and clearer mandates across tiers of government are necessary for stronger governance.

5. Financial Reporting, Auditing and Transparency

Auditing is a core component of public-sector financial accountability because it provides systematic examination of financial records, transactions and controls. In PHC financing, auditing can help determine whether resources received by facilities correspond with recorded expenditure and whether expenditure was authorized and appropriately documented.

Transparency strengthens this process by making relevant information available to stakeholders capable of using it. Transparency may include disclosure of allocations, transfers, expenditures and service entitlements. Greater transparency can reduce information asymmetry between governments, facility managers and communities and can make diversion or inappropriate expenditure more difficult to conceal.

Uzochukwu *et al*. (2018) [9] identified weak financial management, poor data management, inadequate monitoring and supervision, political interference and corruption as major threats to BHCPF accountability. These factors are interconnected: poor data systems make monitoring difficult, weak monitoring reduces the probability of detecting inappropriate expenditure, and limited enforcement reduces incentives for compliance.

6. Procurement and Fund Utilization at PHC Level

Fund utilization refers to how financial resources received by PHC facilities are converted into inputs and activities necessary for service delivery. Appropriate utilization should reflect approved priorities and demonstrate value for money. Procurement represents a critical interface between financing and service delivery because medicines, consumables, equipment, maintenance services and minor infrastructure works require purchasing decisions.

Drug availability is a particularly useful indicator of effective fund utilization. A PHC facility may receive significant financial resources but continue to experience prolonged stock-outs because of poor forecasting, procurement delays, inadequate inventory management or diversion. Infrastructure upgrading provides another tangible indicator, while staff incentives may influence performance where permitted and properly managed.

7. Fund Leakage and Governance Failure

Fund leakage refers to resources that fail to reach their intended purpose because of diversion, unauthorized expenditure, fraud, corruption or other forms of financial mismanagement. Leakage represents one of the most serious failures of health-financing governance because it reduces resources available for patients while undermining public trust.

Where expenditure is routinely reported, accounts are audited, procurement decisions are documented and community representatives participate in oversight, irregular transactions are more likely to be identified. Nevertheless, absence of reported leakage should not automatically be interpreted as evidence that leakage does not exist, because weak accountability systems may reduce detection and reporting.

8. Accountability and Service Utilization

Service utilization provides an outcome-oriented measure of the effectiveness of PHC financing. Increased antenatal attendance, facility delivery, immunization and treatment of common illnesses may indicate that improvements in facility readiness and perceived quality are influencing healthcare-seeking behaviour.

The pathway from accountability to utilization is indirect but theoretically plausible. Stronger accountability can improve the probability that funds are spent on intended inputs. Better fund utilization can increase medicine availability, equipment functionality, infrastructure quality and staff responsiveness. Improved readiness and quality can increase community confidence and reduce barriers to using PHC services.

9. Theoretical Framework

The present study is situated primarily within Principal-Agent Theory, supplemented by principles of public financial management and social accountability. Principal-Agent Theory explains relationships in which one party—the principal—delegates responsibilities and resources to another—the agent, but cannot perfectly observe the agent's behaviour.

Within BHCPF implementation, multiple principal-agent relationships exist. Federal institutions transfer

responsibilities and resources to subnational agencies; state agencies supervise facilities; facility managers control expenditure; and citizens ultimately expect government institutions and healthcare providers to use public resources in their interests. Audits, financial reporting, procurement controls and supervision reduce information asymmetry by generating verifiable information about agent behaviour. WDCs and Health Facility Committees extend accountability to communities.

10. Empirical Evidence on BHCPF Accountability

One of the foundational empirical investigations was undertaken by Uzochukwu *et al*. (2018) [9]. The authors examined governance and accountability readiness for BHCPF implementation and identified planning, transparent monitoring, supervision and systematic reporting as necessary accountability mechanisms. Major barriers included inadequate trust and transparency, corruption, political interference, poor data management, weak financial-management systems and limited implementation capacity.

Adeoye *et al*. (2024) [1] subsequently examined stakeholder perspectives on BHCPF governance. Respondents generally viewed federal financial processes as comparatively well protected but identified substantial weaknesses in subnational accountability, including low utilization, poor quality, unclear accountability arrangements and limited involvement of citizens and local governments.

Taken together, these studies establish a strong conceptual and qualitative basis for expecting accountability to influence BHCPF performance. However, much of the available evidence relies on interviews, stakeholder perceptions, policy analysis and governance assessment rather than quantitative facility-level relationships between accountability mechanisms and observable service outcomes.

11. Gap in the Literature

Three important gaps emerge from the literature. First, relatively limited nationwide facility-level evidence simultaneously examines BHCPF funding, auditing, financial reporting, community oversight and procurement practices. Second, insufficient empirical attention has been given to the relationship between accountability and actual fund-utilization indicators, including essential-drug stock-outs, infrastructure improvements, staff incentives and reported leakage. Third, the relationship between facility-level accountability and service utilization requires stronger empirical assessment.

The present study addresses these gaps using data from 276 PHC facilities distributed across Nigeria's six geopolitical zones. It integrates financial inputs, governance mechanisms, fund-utilization indicators and service outcomes within a single analytical framework and extends the literature from primarily qualitative assessment towards quantitative evaluation of facility-level accountability and performance.

Methodology

1. Study Design

The study adopted a health facility-based analytical cross-sectional design to assess accountability mechanisms, utilization of BHCPF resources, and primary healthcare service outcomes in Nigeria. The design permitted facility-level measurement of financial governance practices and examination of their associations with fund-utilization and service-delivery indicators at a defined assessment period. The analytical framework was informed by the accountability and financial-management principles of the BHCPF implementation framework and the statutory foundation of the Fund under Section 11 of the National Health Act 2014 [5].

2. Study Setting and Population

The study covered primary healthcare facilities across Nigeria's six geopolitical zones: North-Central, North-East, North-West, South-East, South-South and South-West. The study population comprised PHC facilities participating in the BHCPF programme. Both conventional PHC facilities and model PHCs were represented, as were facilities serving urban and rural local government settings. The facility constituted the unit of analysis.

3. Sample Size and Sampling

A total of 276 PHC facilities constituted the analytical sample. Facilities were distributed across all six geopolitical zones to provide geographical representation of BHCPF implementation environments. For analytical purposes, geopolitical zone was coded as North-Central = 1, North-East = 2, North-West = 3, South-East = 4, South-South = 5 and South-West = 6. Local government setting was classified as urban or rural, while facility type was categorized as PHC or model PHC. Because the facility dataset contained state identifiers that did not consistently correspond to the stated 1–36 coding scheme, the STATE variable was treated as an administrative identifier and was not used for state-specific inference.

4. Study Variables and Measurement

The principal explanatory variables reflected the availability of financial resources and facility-level accountability mechanisms. Years of BHCPF participation was categorized as less than one year, 1–2 years, 3–4 years and five years or more. Fund received represented the amount in Nigerian naira received by each facility during the preceding 12 months. Four governance indicators were examined: annual account auditing, existence of a functional Ward Development Committee/Health Facility Committee, monthly financial reporting to the State Primary Health Care Development Agency and availability of a documented procurement policy. Fund-utilization and performance indicators included essential drug stock-out lasting more than seven days, BHCPF-supported infrastructure renovation or equipment acquisition, use of BHCPF resources for staff incentives, and suspected fund leakage or diversion. Service utilization represented the percentage increase in antenatal-care attendance and deliveries compared with the preceding year. Accountability performance was additionally measured using the supplied ACCOUNTABILITY_SCORE ranging from 0 to 10, with higher values indicating stronger facility-level accountability.

5. Data Collection and Quality Control

Facility-level information was compiled using a structured assessment instrument corresponding to the study codebook. Data collection focused on objectively identifiable financial

and operational indicators, including receipt of funds, audit status, reporting practices, committee functionality, procurement arrangements and evidence of expenditure on infrastructure and staff support. Service-utilization information was based on facility records comparing ANC attendance and deliveries with the corresponding previous-year period. Completed records were checked for completeness, consistency, valid coding and implausible values before analysis. The inconsistency detected in state coding was documented and the variable excluded from state-level comparisons.

6. Statistical Analysis

Data were analyzed using descriptive and inferential statistical procedures. Categorical variables were summarized using frequencies and percentages, while continuous variables such as BHCPF funds received, service utilization and accountability score were summarized using means and standard deviations, with medians and interquartile ranges considered where distributions were substantially skewed. Pearson's chi-square test or Fisher's exact test, where appropriate, was specified for associations between accountability mechanisms and binary outcomes. Independent-samples t tests or analysis of variance were specified for comparison of continuous outcomes, subject to assumptions.

Multiple linear regression was specified for continuous service utilization, while binary logistic regression was specified for dichotomous outcomes. Adjusted regression coefficients or adjusted odds ratios, 95% confidence intervals and p values were to be reported where model assumptions were satisfied. Potential multicollinearity among auditing, reporting, committee functionality, procurement policy and the composite accountability score was assessed before multivariable modelling; highly overlapping indicators were not entered simultaneously. Statistical significance was determined at $p < .05$.

7. Ethical Considerations

The analysis was conducted at the health-facility rather than individual-patient level. Facility identifiers were represented numerically and no personally identifiable patient information was included in the analytical dataset. Confidentiality of facility-level financial information was maintained, and findings were reported principally in aggregate form. The study adhered to established principles of confidentiality, responsible data management and ethical health-systems research.

Results and Discussion

1. Results

1.1 Facility Characteristics and BHCPF Exposure

The analysis comprised 276 primary healthcare facilities drawn from Nigeria's six geopolitical zones. Each geopolitical zone contributed 46 facilities, representing 16.7% of the analytical sample. The facilities differed in their duration of participation in the BHCPF programme, ranging from less than one year to five years or more. The amount received during the preceding 12 months varied substantially, ranging from approximately ₦1.6 million to ₦15.3 million.

1.2 Accountability Mechanisms

Accountability mechanisms differed substantially among the facilities. Based on the complete dataset, 161 of the 276 facilities (58.3%) had undergone an annual financial audit, while 115 (41.7%) had not. Accountability scores ranged from 1 to 10, demonstrating wide variation in facility-level financial governance. Facilities with the strongest accountability configurations were concentrated at scores of 9–10, whereas facilities lacking audits, financial reporting and functional community oversight were concentrated at the lower end of the scale. Auditing, financial reporting, functional community committees and procurement controls frequently occurred together rather than independently.

1.3 BHCPF Fund Utilization

Infrastructure improvement was strongly concentrated among facilities with stronger accountability systems. Facilities characterized by regular auditing and reporting were more likely to report BHCPF-supported renovation or equipment acquisition. Essential drug stock-outs demonstrated an inverse descriptive relationship with accountability: facilities with low accountability scores frequently reported essential medicines being unavailable for periods exceeding seven days, whereas high-accountability facilities generally reported fewer prolonged stock-outs. Suspected fund diversion was concentrated among facilities characterized by weak auditing, limited financial reporting and weak or absent community oversight. Because leakage was measured as suspected or reported diversion rather than through a forensic audit, this finding should be interpreted as an association with reported leakage rather than proof of the absence of financial irregularities.

1.4 Accountability and Service Utilization

Service utilization, measured as the percentage increase in antenatal-care attendance and deliveries compared with the preceding year, ranged from 0% to 84% across the sampled facilities. A pronounced descriptive gradient was observed between accountability and service utilization. Facilities with accountability scores at the lower end of the scale commonly recorded utilization changes in the single digits or low teens, while facilities with scores of 9–10 frequently recorded substantially larger increases. Facilities possessing the combined accountability configuration of audited accounts, functional community oversight and regular financial reporting generally demonstrated higher service-utilization values than facilities lacking these mechanisms. The results are interpreted as associations rather than causal effects because of the cross-sectional design.

2. Discussion

The principal finding of this study is that BHCPF financing appears to generate the most favourable service-delivery patterns where financial resources operate within a stronger accountability environment. Across the 276 PHC facilities, higher accountability was consistently accompanied by better infrastructure utilization, fewer drug-stock-out problems, lower reported leakage and greater increases in ANC and delivery utilization. This suggests that the

effectiveness of BHCPF cannot be evaluated solely according to how much money is allocated or disbursed.

The finding that 58.3% of facilities had audited accounts demonstrates both progress and an important accountability deficit. More than two-fifths of the facilities had no recorded annual audit. In a programme involving management of public resources at frontline facilities, such a gap potentially limits independent verification of expenditure. This result supports Uzochukwu *et al.* (2018) [9], who identified transparent monitoring, supervision, financial management and systematic reporting as critical requirements for effective BHCPF accountability.

Community accountability was another important dimension. Functional WDCs or Health Facility Committees potentially bring accountability closer to service users and can monitor whether medicines are available, renovations occur, staff are present and facility resources correspond with stated allocations. This is consistent with Adeoye *et al.* (2024) [1], who found that limited citizen and local-government participation remained an important weakness in BHCPF governance.

The relationship between accountability and infrastructure upgrading is particularly important because BHCPF was designed not merely as a bookkeeping mechanism but as a means of improving the capacity of frontline facilities to deliver essential services. Renovated facilities, functional equipment, reliable utilities and appropriate clinical environments constitute tangible manifestations of public expenditure.

The drug-stock-out findings reinforce this interpretation. Availability of essential medicines is one of the most immediate ways in which patients experience the performance of PHC financing. Repeated stock-outs can force patients to purchase medicines privately, increase out-of-pocket expenditure and undermine confidence in government facilities. The concentration of prolonged stock-outs among weaker-accountability facilities suggests that financial governance, procurement and supply-chain management are closely interconnected.

The observed association between accountability and reported leakage is equally important. Facilities with the strongest combined accountability mechanisms recorded little or no reported diversion, whereas suspected leakage was concentrated among facilities with weak governance arrangements. This is consistent with Principal-Agent Theory, under which monitoring, reporting and community oversight reduce information asymmetry. Nevertheless, reported leakage is not equivalent to leakage established through forensic investigation.

Perhaps the most policy-relevant finding concerns the relationship between accountability and service utilization. Facilities with stronger accountability scores recorded substantially greater increases in ANC attendance and facility deliveries than low-accountability facilities. The observed gradient is theoretically plausible because effective auditing, reporting and community oversight can improve the probability that funds are used for medicines, infrastructure, equipment and operational requirements, which can subsequently improve facility readiness and community confidence.

Duration of BHCPF participation and amount of funding received also deserve cautious interpretation. Better-performing facilities may receive more resources because of facility category, implementation duration, service volume or other institutional characteristics. The association between funding and performance should therefore not automatically be interpreted as an independent causal effect of larger allocations.

Another important finding is that accountability indicators tend to occur together. Audit status, reporting, committee functionality, procurement arrangements and accountability score demonstrate conceptual and empirical overlap. Entering the composite accountability score simultaneously with all of its component indicators in the same multivariable regression could create multicollinearity and produce unstable estimates. Separate models using either individual mechanisms or the composite score are therefore preferable.

3. Implications of the Findings

The findings indicate that strengthening BHCPF should involve more than increasing financial allocations. The policy priority should be to institutionalize an accountability-to-performance pathway in which disbursement is accompanied by auditable expenditure records, routine financial reporting, functional community oversight, procurement compliance and verification of service outputs.

BHCPF monitoring dashboards should integrate financial and clinical performance indicators. A facility should not be regarded as performing satisfactorily merely because it has spent its allocation and submitted financial returns. Monitoring should establish whether expenditure reduced drug stock-outs, improved infrastructure and equipment, strengthened service readiness and increased utilization of essential PHC services.

Overall, the findings support the central proposition of the study: financial accountability and effective fund utilization are closely interconnected with PHC performance. BHCPF provides an important financing platform for strengthening Nigerian primary healthcare, but its impact depends substantially on the governance environment within which facility-level resources are managed.

Conclusion and Recommendations

1. Conclusion

This study assessed BHCPF accountability, fund utilization and primary healthcare service performance among 276 PHC facilities distributed equally across Nigeria's six geopolitical zones, with 46 facilities (16.7%) from each zone. The findings demonstrate substantial variation in BHCPF financing, accountability arrangements and service-utilization performance across the sampled facilities.

BHCPF funding received during the preceding 12 months ranged from ₦1.6 million to ₦15.3 million. Facility-level accountability was similarly heterogeneous. Of the 276 facilities, 161 (58.3%) had undergone annual account auditing, while 115 (41.7%) had not. Accountability scores ranged from 1 to 10, demonstrating substantial differences in the strength of financial-governance arrangements among facilities.

A clear descriptive relationship was observed between accountability and the utilization of BHCPF resources. Facilities with stronger accountability arrangements were more frequently characterized by BHCPF-supported infrastructure upgrading and were less frequently characterized by prolonged essential-drug stock-outs.

Suspected fund diversion occurred predominantly among facilities with weaker accountability arrangements.

Service utilization showed particularly wide variation, ranging from 0% to 84% increase in antenatal-care attendance and deliveries compared with the preceding year. Facilities at the lower end of the accountability scale commonly recorded relatively small changes in utilization, whereas facilities with accountability scores of 9–10 generally recorded substantially larger increases.

Taken together, the findings support a strong descriptive association between facility-level accountability and BHCPF performance. Higher accountability was consistently accompanied by more favourable patterns of infrastructure utilization, medicine availability, reported financial integrity and service utilization. However, the findings do not establish causality because the cross-sectional design cannot determine whether stronger accountability caused improved service utilization or whether better-performing facilities were also more capable of implementing accountability requirements.

The study therefore concludes that strengthening accountability should remain a central component of BHCPF implementation. Achieving the objectives of the Fund requires both adequate financing and reliable mechanisms for ensuring that resources are transparently managed and translated into essential medicines, functional infrastructure and increased utilization of PHC services.

2. Recommendations

1. **Close the facility-level audit gap:** Since only 161 of 276 facilities (58.3%) had undergone annual auditing, BHCPF implementing institutions should work towards annual audit coverage of all participating facilities, with particular attention to the 115 facilities (41.7%) without documented annual audits.

2. **Prioritize low-accountability facilities for supportive supervision:** Facilities at the lower end of the 1–10 accountability scale should receive targeted financial-management support, supervision and corrective action, focusing on auditing, monthly reporting, functional community oversight and procurement compliance.

3. **Strengthen Ward Development Committee/Health Facility Committee functionality:** Community governance structures should participate meaningfully in facility planning, expenditure monitoring and verification of BHCPF-funded activities.

4. **Use drug stock-outs as a financial-performance warning indicator:** Facilities experiencing essential-drug stock-outs exceeding seven days should be flagged for review of procurement, inventory management, expenditure and supply-chain processes.

5. **Verify infrastructure expenditure against physical outputs:** Reported expenditure on renovation and equipment should routinely be matched with physical verification of completed works and functioning equipment.

6. **Strengthen leakage detection rather than relying exclusively on self-report:** Routine financial audits should be supplemented with bank reconciliation, procurement verification, expenditure documentation and physical verification of purchased items.

7. **Integrate accountability and service-utilization monitoring:** Given the observed 0–84% range in service-utilization change, BHCPF performance assessment should integrate financial indicators with ANC attendance, facility deliveries, medicine availability and other service outputs.

8. **Undertake adjusted statistical modelling before making causal policy claims:** The descriptive relationships should be tested using appropriate multivariable models controlling for geopolitical zone, urban/rural location, facility level, duration of BHCPF participation and funding received, with adjusted estimates, 95% confidence intervals and p values reported where assumptions are satisfied.

3. Final Conclusion

The evidence from the 276 PHC facilities indicates that BHCPF implementation occurs within markedly different accountability environments. Annual auditing covered 58.3% of facilities, accountability scores extended across the 1–10 scale, BHCPF receipts ranged from ₦1.6 million to ₦15.3 million, and changes in service utilization ranged from 0% to 84%. Within these variations, stronger auditing, financial reporting and community oversight consistently coincided with more favourable fund-utilization and service performance indicators. The central policy implicati on is that BHCPF financing and accountability should be strengthened together.

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